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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/748,370

12/29/2003

Andrew Nguyen

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11/29/2005

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EXAMINER

ANYA, IGWE U

ART UNIT

PAPER NUMBER

2891

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary

Application No.

10/748,370

Applicant(s)

NGUYEN, ANDREW

Examiner

lgwe U. Anya

Art Unit

2891

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-12 and 23-27 is/are allowed.
- 6) ☒ Claim(s) 13-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/25/05</u> . | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 13 – 15, and 19 – 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fu et al. (US Patent 6500242) in view of (USPAB 2004/0144736).

3. Fu et al. teach a polymer solution coating system (fig. 2), comprising;

providing a substrate (46) on a substrate station (50);

dispensing the polymer solution onto the surface of a substrate using a coating system having a pump (42) connected in-line with a buffer tank (20) and a polymer solution source (16);

drawing the polymer solution from the polymer solution source and the buffer tank in a continuous fluid path to dispense the polymer solution with the pump (fig. 2);

applying a pressure (12) to the polymer solution source to transfer the polymer solution into the buffer tank;

providing a valve (14) between the pressure source and the polymer solution source;

rotating the substrate to spread the polymer solution (col. 2 lines 30 – 33);

wherein the polymer solution is a photoresist solution (col. 1 line 26 – 35);

a momentary valve (14) to control pressure applied to the polymer solution source to create a pressure that transfers the polymer solution into the buffer tank (col. 1 lines 45 – 55);

fluid sensors (28, 32, 34, 36) placed in communication with the buffer tank; and
a controller interface (30) connected to the fluid sensors and pump (fig. 2)

4. Fu et al. lack:

an enable valve placed between the buffer tank and the pump wherein opening the enable valve allows the polymer solution to flow to the pump;

evaporating solvent from the polymer solution dispensed on the surface of the substrate to form a polymer layer on the surface of the substrate (col. 8 lines 25 – 28),

maintaining a relatively constant level of polymer solution in the buffer tank;

flowing an inert gas into the polymer solution source to create a pressure that transfers the polymer solution into the buffer tank via a momentary valve; and

5. However, Yajima (fig. 1) teaches:

an enable valve (V3) placed between a buffer tank (61) and a pump (17) wherein opening the enable valve allows the polymer solution to flow to the pump;

air release valve (V2, V6) and sensors (fig.2 elements 20, 21) placed in communication with the buffer tank;

6. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Yajima into the Fu et al. reference an release trapped bubbles to stabilize the accuracy of the polyimide discharge, thereby controlling the uniformity of the thickness of the coating film.

Regarding maintaining a constant level of polyimide, claims 14, and 22, it has been held that a recitation with respect to the manner in which a claimed apparatus intends to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. (Ex Parte Masham, 2 USPQ F.2d 1647 (1987). Furthermore, providing a manual means to replace a mechanical or automated means involves routine skill in the art.

7. Claims 16 - 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fu et al. (US Patent 6500242) in view of (USPAB 2004/0144736), and further in view of Sekiguchi et al. (US Patent 6962627).

8. The Yajima/Fu et al. reference teaches the features previously outlined, but lacks:

a second buffer tank and a second polymer solution source connected in line with the pump; and

the enable valves are capable of switching pumping direct from an empty polyimide source to a full polyimide source.

9. However, Sekiguchi et al. (fig. 4) teach a two buffer tanks (3, 3, 40), two polymer solution sources (2), and enable valves (8, 8, 45) connected in-line with a pump (29);

a second enable valve (fig. 5 element 26a) placed between the second buffer tank (40) and the pump; and

the enable valves are capable of switching pumping direct from an empty polyimide source to a full polyimide source (col. 6 lines 55 – 58) including interlocked opening and closing with system controller (16).

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10. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Sekiguchi et al. into the Yajima/Fu et al. to avoid drawing in air bubbles when replacing empty source-tanks.

11. Claims 1 –12, and 23 – 27 are allowable, because prior art does not teach inter alia, maintaining the buffer tank at a constant level predetermined to be sufficient to prevent air from being drawn into a dispensing solution, and a fluid sensor and release valve for releasing bubbles whenever bubbles are detected.

Remarks

12. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Contact Information

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Igwe U. Anya whose telephone number is (571) 272-1887. The examiner can normally be reached on M - F 8:30am - 5:00pm.

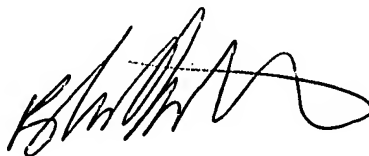
14. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William B. Baumeister can be reached on (571) 272-1722. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

15. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Igwe U. Anya
Examiner
Art Unit 2891

IA

November 25, 2005



**B. WILLIAM BAUMEISTER
SUPERVISORY PATENT EXAMINER**